

07/10/2001  
Permit No.: V-1697  
FINAL

## **IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT**

150 S. Ninth Street  
El Centro, CA 92243  
(760) 339 4606

### **MAJOR FACILITY PERMIT REVIEW**

Company Name:	Holly Sugar Corporation (dba) Spreckels Sugar Company
Facility Name:	Spreckels Sugar Company, Brawley Factory
SIC Code:	2063 (Sugar Beet Processing Plant)
Source Type:	Sugar Beet Processing Plant
Location:	395 W. Keystone Road, Brawley, California.
Responsible Official:	Bill Stewart
Plant Site Contact:	Bill Stewart
Permit Reviewer:	Reyes Romero

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## **I. Introduction**

Pursuant to Rule 900, of the Imperial County Air Pollution Control District Rules and Regulations, the District intends to issue a Title V Operating Permit to Spreckels Sugar Company, Brawley factory. Spreckels Sugar Company is a sugar beet processing plant. The Operating Permit will be under permit No. V-1697. The Operating Permit includes conditions to ensure that all Federal requirements are satisfied.

## **II. Project Description**

Spreckels Sugar Company was constructed in 1947. The facility processes field-run sugar beets for the manufacturing of sugar. Sugar beets are first unloaded at a sugar beet receiving station. The beets are washed and sliced. The sliced (shoe string) beets are introduced into a diffuser, thus producing a sugar juice. The beet pulp is further pressed for extracting the remaining sugar juice. After pressing, the pulp with 75% moisture, is hauled out to the sun-drying area. Sun drying of beet pulp is on a 108-acre black-top surface area. The pulp is spread out and periodically turned to promote drying and wind rowed for loading and storage.

Limestone rock is calcined in two coke-fired kilns producing carbon dioxide and calcium oxide. The calcium oxide is slaked to produce calcium-hydroxide. The carbon dioxide and the slaked lime are two major compounds used in the sugar purification process. The slaked lime and compressed CO<sub>2</sub> are absorbed into the first and second stage carbonation tanks. After the second stage, the juice is piped to the secondary filters. From the secondary filters, the juice is piped to the settling tanks. The precipitated calcium carbonate (PCC) settles out and is pumped to the PCC evaporation pond and is stored. Sulfur is burned in a sulfur stove to produce sulfur dioxide which is introduced into the sulfur tower and is absorbed into the juice for color enhancement and reduce alkalinity. The juice is further evaporated and thickened to super saturation to form crystals. The thickened juice or syrup is centrifuged into sugar crystals, a three-stage process. The sugar crystals are then dried and stored into silos. Storage tanks are available to store surplus syrup production allowing sugar production to continue after sugar beet harvesting terminates in late July. Molasses, a by-product of syrup production, is the low end after of the centrifuge process. Molasses, as well as the beet pulp is used as by product for cattle feed-

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supplement.

The facility operates a Riley boiler to furnish steam needed to drive a turbo-generator and other turbine drives. The steam exhausting from these turbines furnishes the heat needed in the manufacturing of sugar. Additionally, the facility operates a Union Boiler, a C.E. boiler and an Auxiliary boiler. The Riley boiler burns coal and the remaining boilers burn natural gas and fuel oil.

The average operating time of sugar beet processing at Holly Sugar is 135 days per year (April thru July).

### **III. Current Emission Status:**

Holly Sugar Corporation submitted a Title V application on May 30, 1996, for its facility in Brawley, California. This facility is a major source of emissions for Nitrogen Oxides (NO<sub>x</sub>), Sulfur Dioxide (SO<sub>2</sub>), and Carbon Monoxide (CO).

### **IV. Applicable Requirement**

According to the information submitted in the Title V application and the District review, the following are the Federal, State, and District requirements that apply to the facilities.

Applicable Requirement	Enforceability	Equipment Affected
Rule 111-Equipment Breakdown	Federal, District	Facility Wide
Rule 117-Nuisance	Federal, District	Facility Wide
Rule 201-Permits Required	Federal, District	Facility Wide
Rule 202-Exemptions	Federal, District	Facility Wide
Rule 207-Standards for Permit to Construct	Federal, District	Facility Wide
Rule 208-Standards for Permit to Operate	Federal, District	Facility Wide
Rule 401-Opacity of Emissions	Federal, District	Facility Wide

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Rule 403-Quantity of Emissions	Federal, District	Facility Wide
Rule 405-Sulfur Compounds	Federal, District	Facility Wide
Rule 406-Specific Contaminants	Federal, District	Facility Wide
Rule 126-Sulfur Content of Fuels	Federal, District	Union Boiler, CE Boiler.
Rule 131-Fuel Burning Equipment	Federal, District	Riley Boiler and Auxiliary Boiler

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<p>NSR Permit 1697B</p> <p>A. Compliance with Application</p> <p>B. Max Permitted Operating Parameters          BTU input: 194.4 E6 Btu/hr          Coal Burning Rate: 18,514 lb/hr          Yearly Use: 135 days/yr          Avg. Coal Content: 0.8% S; 1.4% N</p> <p>C. Non-Boiler Emissions          1. Fugitive Coal Dust Control from Railroad Unloading Hopper and Coal Storage Piles. 20% Opacity.          2. Coal and Ash Handling Systems          0.01 gr/st. Ft3 and 10% Opacity.</p> <p>D. Boiler Emissions          1. Sox 20 lb/hr or 0.103 lb/mmbtu          NOx 80 lb/hr or 0.41 lb/mmbtu          TSP 13 lb/hr          PM10 5 lb/hr          2. Boiler shall operate with Min. O<sub>2</sub>.</p> <p>E. Monitoring          1. Performance Test upon Request by the APCD.          2. CEM if NO<sub>x</sub> 90% of limit.          3. Pressure Drop Meter.          4. Circulation and pH meter.          5. Stack Access for Performance Test.          6. Continuous flue gas oxygen monitor and recorder.          7. Annual Report of Coal fuel: Fuel Usage; Analysis for S, N<sub>2</sub>, Btu.          8. Additional Performance Test, if monthly S&gt;0.82% or N<sub>2</sub>&gt;1.4%.</p> <p>F. Application Modification</p> <p>G. Previous Permits Superseded</p>	<p>Federal, District</p>	<p>Riley Boiler</p>
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<p>NSR Permit 2273A</p> <ol style="list-style-type: none"> <li>1. Equipment compliance with application.</li> <li>2. Equipment compliance with Rules and Regulations.</li> <li>3. Permit does not authorize emissions in excess of those allowed by USEPA: CA Division 26, Part 4; Chapter 3, H&amp;SC; or the APCD.</li> <li>4. No permission to violate laws, ordinances, regulations, rules or statutes of other governmental agencies.</li> </ol> <p>A. Sulfur Stoves:</p> <ol style="list-style-type: none"> <li>1. Sulfur fired 1.95 tons per day; 0.648 MMBtu/hr.</li> <li>2. Sulfur Stove Emission Limits:            PM<sub>10</sub> 12 lb/hr            SO<sub>2</sub> 0.2% volume</li> </ol> <p>B. Sugar Packing and Warehouse Dust Collectors:</p> <ol style="list-style-type: none"> <li>1. Air flow: 8,000 cfm; filter size: 2,131 sq-ft.</li> <li>2. Dust collectors shall contain a pressure drop meter in good working order.</li> <li>3. Visible emissions 20% opacity max.</li> </ol> <p>C. Sugar Storage Silos Dust Collectors:</p> <ol style="list-style-type: none"> <li>1. Air flow: 6,000 cfm; filter size: 4,745 sq-ft.</li> <li>2. Dust collector shall contain a pressure drop meter in good working order.</li> <li>3. Visible emissions 20% opacity max.</li> </ol> <p>D. Gypsum Bulk Silo:</p> <ol style="list-style-type: none"> <li>1. 52 ton; pneumatic fill system; vent sack filter.</li> <li>2. Silo equipped w/vent sack filter.</li> </ol>	<p>Federal, District</p>	<p>Sulfur Stove, Sugar Packing and Warehouse Dust Collector and Sugar Storage Silos Dust Collector.</p>
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<p>NSR Permit # 1631A</p> <ol style="list-style-type: none"> <li>1. Equipment compliance with application.</li> <li>2. Equipment compliance with APCD Rules and Regulations.</li> <li>3. Permit does not authorize emissions in excess of those allowed by USEPA: CA Division 26, Part 4; Chapter 3, H&amp;SC; or the APCD.</li> <li>4. No permission to violate laws, ordinances, regulations, rules or statutes of other governmental agencies.</li> </ol> <p>A.1 Emission Limits from Fullerton-Beckenbach lime kiln Exhaust (Carbonation Tank)</p> <p style="padding-left: 40px;">Particulates 250 lb/day and 16.1 lb/hour</p> <p style="padding-left: 40px;">Sulfur Dioxide 250 lb/day</p> <p style="padding-left: 40px;">Nitrous Dioxides 250 lb/day</p> <p>A.2 Visible emissions 20% opacity Max.</p> <p>A.3 Visible emissions 20% opacity max. from the coke and limestone piles.</p> <p>B.1 Dust collection system equipped with baghouse.</p> <p>B.2 Equipment in good working order at all times. If a breakdown, notification is required.</p> <p>B.3 If breakdown requires more than 24 hours, an emergency variance as an alternative for shutdown can be requested.</p> <p>B.4 Visible emission 20% opacity max. from the baghouse.</p> <p>B.5 Dust collected must be discharged into closed containers.</p>	<p>Federal, District</p>	<p>Lime Kilns</p>
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NSR Permit # 1112 1. Boiler Emissions PM10 10 lb/hr SO <sub>2</sub> 200 lb/hr NO <sub>x</sub> 140 lb/hr 2. Stack visible emissions Ringlemann #2 Max.	Federal, District	CE Boiler
NSR Permit # 1113 1. Boiler Emissions PM10 10 lb/hr SO <sub>2</sub> 200 lb/hr NO <sub>x</sub> 140 lb/hr 2. Stack visible emissions Ringlemann #2 Max.	Federal, District	Union Boiler
NSR Permit 2274 1. Boiler Emissions PM10 1 lb/hr NO <sub>x</sub> 13 lb/hr 2. Visible emissions Ringleman 1 max. 3. Auxiliary boiler shall not operate unless one of the three boilers (Riley, CE, or Union) is not operating.	Federal, District	Auxiliary Boiler
NSR Permit #2687 1. Compliance with Application 2. Compliance with Rule 415	Federal, District	Aboveground Gasoline Storage Tank

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NSR Permit #3048 1. Equipment compliance with application. 2. Equipment compliance with APCD Rules and Regulations. 3. Permit does not authorize emissions in excess of those allowed by USEPA: CA Division 26, Part 4; Chapter 3, H&SC; or the APCD. 4. No permission to violate laws, ordinances, regulations, rules or statutes of other governmental agencies. 5. No public nuisance 6.Opacity 40% 7.Use of ARB's certified abrasives 8.Report for total pounds of abrasives used and brand names of abrasives.	Federal, District	Sandblaster
40 CFR Part 82, Stratospheric Ozone Protection	Federal	Air Conditioning
Rule 900-Operating Permits	Federal, District	Facility Wide

## V. Statements of Basis

The proposed Operating Permit includes conditions to ensure that all Federal requirements are satisfied. Additionally, the permit has been designed to have adequate monitoring, record keeping and reporting requirements to demonstrate continuous compliance with the permit conditions.

The following provides additional clarification regarding certain permit changes and permit conditions.

### 1. Riley Boiler Permitting History

Holly Sugar was constructed in 1947 to manufacture sugar from sugar beets. The Riley boiler was installed at that time to furnish steam needed to drive a turbo-generator and other turbine drives. The original ATC permit # 1113 was issued for the Riley boiler on February

1, 1977. The boiler was installed with the capability of using No. 6 fuel oil and natural gas as the fuel source. The source requested an amendment to the ATC permit for the conversion of the existing 180 MM Btu/hr oil and gas-fired into a coal burning unit. The ATC permit #1697 was issued for a 194.4 mm btu/hr coal boiler on March 28, 1985. On January 5, 1988, the facility requested an amendment to the ATC permit. An agreement was made with the source to exchange an increase of the emission limit of particulate matter for a reduction of the emission limits for sulfur dioxide and nitrogen oxides. The ATC numbering was changed to 1697A. The ATC permit was amended again to change the requirement of a yearly source test of the Riley boiler to a source-test upon request by the APCD. The numbering of the ATC changed to 1697B. The ATC 1697B superceded all the previous preconstruction permits and it assures compliance with the SIP-Rules requirements. It will be incorporated into the Operating Permit as federally enforceable.

2. 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

40 CFR Part 60, Subpart Db set limits for the operation of steam generating units which were constructed after 6/19/84 (Subpart Db). The facility submitted an application on August 31, 1984, for the conversion of the existing 180 MM Btu/hr oil and gas-fired Riley boiler into a coal burning unit. The project met the definition of modification of the New Source Review Rule operating at that time; therefore, the source was required to apply BACT to mitigate emission increases; an amended ATC was issued. However, it is unclear whether the project met the definition of modification on 40 CFR 60.2 (Subpart A) and if the project should be subject to 40 CFR 60, Subpart Db. EPA Region IX was consulted for a final decision on this issue (letter to Steve Frey, February 20, 1997). Since a formal response has not been obtained from EPA, it will be assumed that the Riley boiler is not required to comply with the requirements of 40 CFR 60, Subpart Db.

3. Riley Boiler-Compliance with SIP Rule 131.

In accordance with SIP Rule 131, the Riley boiler is required to comply with the following limits: 140 lb/hr of nitrogen oxides, 200 lb/hr of sulfur compounds, and 10 lb/hr of combustion contaminants.

The nitrogen oxides and sulfur compounds limits of SIP Rule 131 will be subsumed under the requirements of NSR permit # 1697B, Condition D.1. Compliance with these limits is assumed due to the worst case limits contained in the NSR Permit of 80 lbs/hr of nitrogen oxides and 20 lbs/hr of sulfur oxides. This is an appropriate action, due to the fact that the NSR permit requirements for nitrogen oxides and sulfur oxides are more stringent than the

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requirements of SIP Rule 131. All of these requirements are currently federally enforceable, therefore, by streamlining these conditions we are not creating new federally enforceable requirements.

Additionally, the boiler is required to comply with a limit of 10 lb/hr of combustion contaminants. Rule 131 states that the combustion contaminants must be derived from the burning of any kind of material containing carbon. The source prepared a particulate emission study, on October 1987, which showed that approximately 25 percent of particulate emission is due to sulfate formation and is not a product of combustion. Therefore, compliance with the combustion contaminants limit of Rule 131 will be monitored separate from the particulate emission limit of NSR permit # 1697B, Condition D.1.

#### 4. Riley Boiler-Compliance with Opacity Limit.

SIP Rule 401.A.1, Opacity of Emissions, sets a 20% opacity limit for the Riley boiler' stack. The facility will demonstrate compliance with the 20% opacity limit using U.S. EPA Method 22. Daily inspections will be conducted while the equipment is operating and during daylight hours. If any visible emissions, excluding condensed water vapor, are detected during an inspection and the emissions are observed continuously or intermittently for 3 minutes, the permittee will take corrective actions that eliminate the visible emissions and report the visible emission as a potential exceedance. If all visible emissions are not eliminated through corrective actions within 24 hours, the permittee will have a CARB-certified smoke-reader determine compliance with the opacity standard, using EPA Method 9.

#### 5. Riley Boiler-Compliance Determination

Compliance of the Riley boiler with the applicable requirements will be determined by conducting an annual performance test. The table below shows the boiler's monitoring requirements to demonstrate compliance with the applicable requirements:

Pollutant	Applicable Requirement	Limit / Standard	Monitoring Requirement	
			Method	Reporting Units
NO <sub>x</sub>	ATC 1697B, Cond D.1	80 lb/hr 0.48 lbs/mmbtu	CARB 100	lb/hr lb/mmbtu
TSP	ATC 1697B, Cond D.1	13 lb/hr	USEPA 5B	lb/hr
TSP	SIP Rule 403	0.2 gr/SCF	USEPA 5B	gr/SCF

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TSP	SIP Rule 406	0.2 gr/SCF @ 12 % CO <sub>2</sub>	USEPA 5B	gr/SCF @ 12 % CO <sub>2</sub>
SO <sub>x</sub>	ATC 1697B, Cond D.1	20 lb/hr 0.103 lb/mmbtu	USEPA 8	lb/hr lb/mmbtu
SO <sub>2</sub>	SIP Rule 405	0.2 % by vol.	CARB 100	ppmv

6. CE and Union Boilers-Compliance with Opacity Limit.

SIP Rule 401.A.1, Opacity of Emissions, sets a 40% opacity limit for the CE and Union boilers. The boilers burn natural gas as the primary fuel and No. 6 fuel oil as the secondary fuel. No monitoring requirements for opacity will be imposed to the boilers when burning natural gas. However, the facility will demonstrate compliance with the opacity limit when burning No. 6 fuel oil using U.S. EPA Method 22. Daily inspections will be conducted while the equipment is operating and during daylight hours. If any visible emissions, excluding condensed water vapor, are detected during an inspection and the emissions are observed continuously or intermittently for 3 minutes, the permittee will take corrective actions that eliminate the visible emissions and report the visible emission as a potential exceedance. If all visible emissions are not eliminated through corrective actions within 24 hours, the permittee will have a CARB-certified smoke-reader determine compliance with the opacity standard, using EPA Method 9.

7. CE, Union and Auxiliary Boilers-Compliance Determination

Compliance with the nitrogen oxides and particulate matter requirements will be determined by conducting a performance test every five years. The table below shows the boiler's monitoring requirements to demonstrate compliance with the applicable requirements:

Pollutant	Applicable Requirement	Monitoring Requirement	
		Method	Reporting Units
NO <sub>x</sub>	NSR Permits	USEPA 7E	ppm @ 3% O <sub>2</sub> dry, lb/hr
TSP (PM10)	NSR Permits	USEPA 5	lb/hr
TSP (PM10)	SIP Rule 403	USEPA 5	gr/SCF
TSP (PM10)	SIP Rule 406	USEPA 5	gr/SCF @ 12 % CO <sub>2</sub>

## 8. Insignificant Activities

Several type of activities and emission units were categorized as insignificant activities. These units are not included in the list of equipment in the Title V Operating Permit due to they are not subject to any source-specific requirements of District's SIP, or ATC requirements, or any federal requirements. These sources do not emit more than two tons per year of a regulated pollutant that is not a HAP nor more than 0.5 tons per year of a federal hazardous air pollutant.

## VI. Insignificant Activities

The following types of activities and emission units were categorized as insignificant activities:

1. Fuel Oil Tank. Residual Fuel Oil Storage tank, aboveground storage tank, 2 000 Gallons Capacity. Residual fuel oil storage tank will be exempted due to the low volatility of residual fuel oil, vapor pressure < 0.1 psia.
2. Diesel Storage Tank. Diesel aboveground storage tank, 100 inches length, 38 inches diameter, Diesel storage tanks will be exempted due to the low volatility of diesel, vapor pressure < 0.1 psia.
3. Diesel Storage Tank. Diesel aboveground storage tank, 145 inches length, 21 inches diameter, Diesel storage tanks will be exempted due to the low volatility of diesel, vapor pressure < 0.1 psia.
4. Solvent part cleaners. Unheated nonconveyorized cleaning equipment with a surface area less than 1.0 sq.m., using organic solvents with an initial boiling point of 160 C or greater, and losing less than 25 gal/yr of solvent to the atmosphere. The solvent used at the cleaning station has an initial boiling point of 177 C, the area is smaller than 1 sq.m., and loses are less than 25 gal/yr.

## VII. Supplemental Annual Fee

The supplemental annual fee for the facilities will be determined according to the guidelines of Rule 900.G. The supplemental annual fee will be calculated according to the following equation:

$$s = [ \$ 32.65 \text{ per ton (CPI adjusted)} \times e ] - f$$

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where:

s = supplemental annual fee in dollars

e = fee-based emissions in tons per year

1998 Actual emission inventory for which fee-based emission schedule applies:

Nitrogen Oxides	=	210.0
Sulfur Dioxide	=	12.6
Particulate Matter (PM-10)	=	47.5
Volatile Organic Compounds	=	1.4
<b>TOTAL</b>	<b>=</b>	<b>271.5</b>

f = sum (in dollars) of annual fees under Regulation III:

Equipment	Permit #	Fee Paid
Riley Boiler	1697B	\$ 2,376.00
CE Boiler	1112	\$ 2,376.00
Union Boiler	1113	\$ 2,376.00
Lime Kilns	1631A	\$ 2,376.00
Auxiliary Boiler	2274	\$ 2,376.00
Manufacturing	2273	\$ 2,376.00
Gasoline Storage Tank	2687	\$ 231.00
Portable Sandblaster	3048	\$ 99.00
<b>TOTAL</b>		<b>\$ 14,586.00</b>

Total Emissions of Fee Pollutants:	271.5 tons/yr
Emissions of Fee Pollutants x \$ 34.87/ton:	\$ 9,467.05
Annual Fees under Reg.III	\$ 14,586.00
Estimated supplemental Title V Program Fee:	\$ 0.00

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These calculations indicate that the annual fee paid by the facilities under Regulation III exceeds the emission fee pollutant schedule under Rule 900 therefore no supplemental fee is required.